ORIGINAL ARTICLE

A Cross-sectional Study to Assess the Knowledge and Attitude of the Private Dental Practitioners towards the Treatment of HIV/AIDS-Infected Individuals

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ABSTRACT

Background: *Dentists have an ethical responsibility to provide treatment to HIV-infected patients, particularly because oral lesions are common among these patients. However, there are no official guidelines about how to treat people living with human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) or how to screen for potentially infectious people. It is obvious that having adequate knowledge about HIV/AIDS enhances the doctors' confidence in their ability to manage the infected patients. The present study was conducted to assess the self-reported knowledge and attitude of private dental practitioners towards the treatment of HIV/AIDS-infected individuals.*

Methods: *The present study was a questionnaire-based study which explored the factors associated with the 'self-reported knowledge and attitude of private dental practitioners towards the treatment of HIV/AIDS-infected individuals'.*

Results: *The willingness to treat patients with HIV was found to be 52.8% among the dental practitioners in the present study, but the majority (54.8%) of the dentists thought that treating an HIV patient would have an effect on the other patients' attitude in receiving treatment/dental care from them. Also, the majority (42.6%) of the dentists thought that infection control procedures necessary for the treatment of the patients with HIV were not a financial burden for the practice.*

Conclusion: *The level of dental practitioners' knowledge regarding HIV and AIDS was found to be average in the present study. The dental school curriculum must be updated and improved in order to enhance the knowledge of students as well teachers about the treatment of HIV/AIDS-infected individuals.*

Keywords: Acquired immunodeficiency syndrome, dental practitioners, human immunodeficiency virus, people living with human immunodeficiency virus, self-reported knowledge.

INTRODUCTION

Worldwide, more than 6800 people become infected with human immunodeficiency virus (HIV) every day and more than 5700 individuals die from acquired immunodeficiency syndrome (AIDS) (1). The important issue is that the number of newly reported HIV infection cases is increasing every year with a changing epidemic pattern but dental care workers are unprepared to treat this increasing number of people living with HIV (PLWHA)/AIDS (2).

Oral health is an essential aspect of the overall medical care for individuals with HIV (3). Oral care for HIV-positive individuals plays a vital role in improving their nutritional intake, medication tolerance/effectiveness, treatment success rate and the quality of their lives (4). With improved survival rates, it is expected that

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 DOI: 10.7727/wimj.2015.391

more HIV-positive patients, with or without the knowledge of their serologic status, will be seeking dental care in the near future (5).

It is essential that every effort should be made to protect both healthcare workers and patients from HIV exposure in the dental practice as the usual route of transmission is through an individual's contact with the infected blood or other bodily fluids (6). The reports indicated that about 90% of the HIV infections among healthcare workers occurred in the developing countries, where occupational safety is a neglected issue (7–9).

It is of major importance that dental practitioners' attitude and knowledge regarding HIV/AIDS together with the possible relationships are studied to highlight their role in fulfilling the intentions of the authorities and expectations of the consumers concerning the risk-group patients. The dental students play an important role in healthcare delivery of HIV/AIDS individuals and are therefore of special interest and importance in this respect (10–12).

All dental professionals should have complete knowledge about the universal precautions, which is an administrative control measure that calls for the implementation of practices and equipment to protect the healthcare workers whenever the potential exists for the dental professionals' exposure to blood. Every patient is considered to be infected with a blood-borne pathogen regardless of the known serostatus (13).

Dental clinical students in particular may encounter a number of incidents where infections, including AIDS, from the patients' body fluids may occur. In comparison with other infectious diseases, dental students were found to be more willing to treat hepatitis B virus (HBV) and hepatitis C virus-infected patients than those with HIV infection (14).

Many studies had been conducted to assess the willingness of oral health professionals to treat HIV-positive individuals either as a main survey or as part of knowledge, attitudes and practice survey in Nigeria and in other parts of the world (15–18). However, only very few studies had been conducted among private dental practitioners. Thus, the present study was carried out to assess the knowledge and attitude of private dental practitioners towards the treatment of HIV/AIDS-infected individuals.

SUBJECTS AND METHODS

The present study was a questionnaire-based study which explored the knowledge and attitude of private dental practitioners regarding the dental treatment of HIV/AIDS patients. The study was carried out among private dental practitioners working in New Delhi, India.

Questionnaire

The questionnaire was used to assess the knowledge and attitude of private dental practitioners regarding the dental treatment of HIV/AIDS patients. The questionnaire used for this study was structured and consisted of 16 items of objective type with response in terms of Yes, No and Do not know.

Collection of data

The data were collected among private dental practitioners practising in New Delhi. The questionnaire was distributed to, randomly selected, 1350 practitioners from the different zones of Delhi region and was thoroughly explained to the dentist. The reminders were given at one weekly interval. The copies of the questionnaire were collected after 3 weeks.

Statistical analyses

The data were tabulated and entered into Microsoft excel 2010 and analysed using the SPSS software 16.0 (Chicago, IL, USA). The descriptive analysis of the responses was carried out, and the results were expressed in the form of numbers and percentages.

RESULTS

A total of 500 private dental practitioners participated in the study with a response rate of 37% out of the total 1350 dental practitioners who were given the proforma. The mean age of the study sample was 35.84 ± 3.49 with 280 (56%) males and 220 (44%) females. The mean years of practice of the private dental practitioners was 12.23 ± 2.26.

The practitioners' willingness to treat patients with HIV/AIDS was high (52.8%) among the private dental practitioners in the present study, and the majority (51.4%) of the dental practitioners agreed that treating an HIV-positive patient is an ethical responsibility of the dentist (Table 1).

A small proportion (33.6%) of the private dental practitioners had an opinion that treating an HIV-positive patient places a dentist at an increased risk of HIV infection and 54.8% of the dentists had an opinion that treating an HIV-positive patient in your clinic will affect other patients' attitude in receiving treatment/dental care from the dentist (Table 1).

When asked about whether infection control procedures are a financial burden to the practice of the dentist, 213 (42.6%) of the dentists agreed, whereas 247 (49.4%) did not agree that the procedures constitute a financial burden. A major proportion (54.4%) of the private dental practitioners were confident of treating a patient with HIV infection safely in dental practice, whereas 37.6% were not confident. The majority (88.0%) of the dentists followed the practice of treating all patients as if they had HBV or HIV infection taking all universal precautions, whereas 17.6% did not follow that practice (Table 1).

Table 1: Questions related to attitude towards the treatment of HIV/AIDS patients

Questions related to attitude	Response	Frequency
Question 1: Will you willingly treat a patient if you know he/she is HIV positive?	Yes No Total	264 (52.8%) 236 (47.2%) 500 (100.0%)
Question 2: Treating HIV positive patient is an ethical responsibility of the dentist.	Yes No Do not know Total	257 (51.4%) 187 (34.4%) 49 (9.8%) 500 (100.0%)
Question 3: Treating an HIV positive patient places a dentist at an increased risk of HIV infection.	Yes No Do not know Total	168 (33.6%) 312 (62.4%) 12 (2.4%) 500 (100.0%)
Question 4: Treating an HIV patient would have an effect on the other patient's attitude in receiving treatment/ dental care from you?	Yes No Do not know Total	274 (54.8%) 140 (28.0%) 40 (8.0%) 500 (100.0%)
Question 5: Is it difficult to deal with staff/assistant fears about patients with HIV/AIDS?	Yes No Do not know Total	320 (64.0%) 140 (28.0%) 40 (8.0%) 500 (100.0%)
Question 6: Infection control procedures necessary for the treatment of the patients with HIV/AIDS are a financial burden for the practice.	Yes No Do not know Total	213 (42.6%) 247 (49.4%) 40 (8.0%) 500 (100.0%)
Question 7: Are you confident that you can safely treat a person with HIV infection in your office?	Yes No Do not know Total	272 (54.4%) 188 (37.6%) 40 (8.0%) 500 (100.0%)
Question 8: You treat all your patients as if they have HBV or HIV.	Yes No Total	412 (82.4%) 88 (17.6%) 500 (100.0%)

AIDS = acquired immunodeficiency syndrome; HIV = human immunodeficiency virus; HBV = hepatitis B virus.

A large proportion (60.4%) of the private dental practitioners in the present study had knowledge regarding the precautions to be taken for treating the patients with HIV/AIDS. Most (82%) of the dentists were of the opinion that HBV is more infectious than HIV and the majority (83.0%) of the dentists had the opinion that infection control practices for HBV are adequate for protection against HIV. A large majority (87.4%) of the dentists thought that exposure to saliva can readily transmit HIV. Most (43.6%) of the dentists were not aware of the immediate measures to be taken in case of needle stick injury from an HIV-infected person (Table 2).

The risk of contracting HIV infection from an HIV-contaminated needle stick injury was reported to be less than 1% by 190 (38.0%) of the dentists, 1%–10% by 100 (20.0%), 11%–50% by 100 (20.0%), more than 50% by 30 (6.0%) of dentists and 80 (16.0%) dentists were not sure (Table 2).

Most (81.6%) of the dentists had the knowledge regarding the oral manifestations in HIV/AIDS patients. More than half (54.6%) of the dentists knew about the drugs to be taken under antiretroviral therapy (ART) therapy for the treatment of HIV/AIDS (Table 2).

Table 2: Questions related to knowledge regarding the treatment of HIV/AIDS

Questions related to knowledge	Response	Total
Question 9: Do you have adequate knowledge regarding the precautions to be taken for treating the patients with HIV/AIDS?	Yes No Do not know Total	302 (60.4%) 136 (27.2%) 62 (12.4%) 500 (100.0%)
Question 10: HBV is more infectious than HIV	Yes No Total	410 (82.0%) 90 (18.0%) 500 (100.0%)
Question 11: Infection control practices for HBV are adequate for protection against HIV	Yes No Do not know Total	415 (83.0%) 75 (15.0%) 10 (2.0%) 500 (100.0%)
Question 12: Exposure to saliva can readily transmit HIV	Yes No Do not know Total	437 (87.4%) 37 (7.4%) 26 (5.2%) 500 (100.0%)
Question 13: Are you aware of the immediate measures to be taken in case of needle stick injury from an HIV-infected person?	Yes No Do not know Total	218 (43.6%) 260 (52.0%) 22 (4.4%) 500 (100.0%)
Question 14: What is the risk of contracting HIV infection from an HIV-contaminated needle stick injury?	Less than 1% 1%–10% 11%–50% More than 50% Don not know Total	190 (38.0%) 100 (20.0%) 100 (20.0%) 30 (6.0%) 80 (16.0%) 500 (100.0%)
Question 15: Are you having the knowledge regarding the oral manifestations associated with the HIV/AIDS?	Yes No Do not know Total	408 (81.6%) 58 (11.6%) 34 (6.8%) 500 (100.0%)
Question 16: Do you have the knowledge regarding the drugs taken under ART therapy for the treatment of HIV/AIDS?	Yes No Do not know Total	273 (54.6%) 149 (29.8%) 78 (15.6%) 500 (100.0%)

Figure in parenthesis indicates percentage.
AIDS = acquired immunodeficiency syndrome; HIV = human immunodeficiency virus; HBV = hepatitis B virus.

DISCUSSION

The present study was conducted to evaluate the knowledge and attitude of dental practitioners towards the treatment of HIV/AIDS-infected individuals. Due to the advances in the treatment of HIV infection, people with HIV are now living longer. The patients who are well controlled on highly active antiretroviral therapy with very low levels of viral load and high numbers of CD4 in the plasma pose very little risk of transmission to the healthcare professionals who use universal precautions (19, 20). As a part of the health professional team, it is important for dental practitioners to be aware of a new era for dental management for PLWHA.

The knowledge and attitude of dental practitioners towards HIV had studied in many countries and revealed surprising results. Dental practitioners had been found to have discriminatory attitudes that potentially affected dental treatment for patients with HIV (21).

Human immunodeficiency virus-related oral conditions occurred in a large proportion of individuals who were HIV-positive and were frequently misdiagnosed or inadequately treated (22). The provision of dental care for people who are HIV-positive is essential for their overall health and well-being. Some previous studies had suggested that dental practitioners' knowledge might affect attitudes towards the treatment of HIV/AIDS patients (23, 24).

The overall willingness of dental practitioners (52.8%) to treat HIV-positive patients in the present study was similar to the findings from the studies conducted by Azodo *et al* (25) (58.8%) and Hu *et al* (26) (49%) recorded among Taiwanese dental students but was higher than 15% among the Jordanian dentists (17). However, the level of willingness found in this survey was comparatively lesser in comparison with the previous reports such as 63.3% among Nigerian preclinical students (27), 63.6% among Nigerian dentists (28), 78.4% of Nigerian dentists by Utomi *et al* (29), 62% of US dental school seniors (30), Bennett *et al* (31) (67%), 84.3% of final-year dental students in the United Kingdom (32), and 83% of US dental students (33, 34).

The dental practitioners' willingness to treat HIV/AIDS patients was thought to be the most significant predictor of the actual treatment of an HIV-positive patient (35). Consequently, if HIV-positive individuals feel abandoned by caregivers, they are less likely to understand the need for prevention and to be motivated to protect others (36). It is important when using the social intervention approaches to HIV prevention to avoid discrimination against people who are HIV-positive (37, 38). The fear of treating HIV-infected patients may be due to inadequate knowledge of HIV transmission.

Research evidence indicated a low occupational risk for HIV-infection among healthcare professionals (32).

Azodo *et al* (25) reported that 81% of the final-year dental students showed great interest in HIV-related information and 82.7% desired more knowledge on safety precautions during the treatment of HIV-positive patients. The majority (90%) of Japanese dental health workers also requested additional education about HIV, particularly information about the prevention and spread of the virus and cross-infection requirements (20).

More than half (51.4%) of the dentists thought that treating HIV-positive patients was an ethical responsibility of the dentist, which was substantially less than the 73.7% of fifth-year and 60.8% of third-year students reported by Ryalat *et al* (39), in which 73.7% of fifth-year students and 60.8% of third-year students thought that HIV/AIDS patients should be treated at any dental facility with the same respect and dignity as other patients.

A substantial proportion (33.6%) of the respondents believed that treating an HIV- positive patient placed a dentist at an increased risk of HIV infection. This finding was similar to the findings of the studies conducted by Crossley (34) (34%) and Bennett *et al* (31) (31%) but was quite less than the finding recorded in the study conducted by McCarthy *et al* (24) (63%).

A high (54.8%) proportion of the respondents reported that treating an HIV patient would affect other patients' attitude in receiving dental care from that dentist. This was higher in comparison with the study of Crossley (34) (34%), but similar results were obtained by McCarthy *et al* (24) (68%), whereas Bennett *et al* (31) reported that 75% of the subjects of their reported that they were afraid of displaying a willingness to treat HIV-positive patients for fear that they would lose other patients.

The fear of respondents related to dealing with staff fears was reported with 64% of the respondents expressing concern. This was similar to the findings reported by Crossley (34), who reported almost the same level of concern (59%) among the respondents and McCarthy *et al* (24) (67%). In the present study, 42.6% of the dentists reported that infection control procedures necessary for the treatment of the patients with HIV/AIDS are a financial burden for the practice, which was similar to the findings from the studies of Crossley (34) (32%) and McCarthy *et al* (24) (45%).

Further research is necessary to fully understand the reasons for these seemingly contradictory sentiments and the hypothesis that fear and stigma might be playing a significant role in the existing attitude of the dental practitioners. Human immunodeficiency virus infection is a stigmatizing condition, and some theorists (40, 41) noted that ambivalence was the most common reaction to stigmatized people.

The view that people's exposure to saliva can readily transmit HIV was agreed on by the majority (87.4%) of the respondents, which was similar to the findings from the studies of Seacat *et al* (42) (84%) and Samaranayake *et al* (12) (100%) but was much higher than the findings of Sadeghi *et al* (43) in which 24.5% of the students agreed that saliva could be a vehicle for the transmission of AIDS, and from the findings of Sheikh *et al* (44) (33.6%) and Jian *et al* (45) (36.9%). There was no gap in the knowledge among the private dental practitioners in the present study in terms of the route of the transmission of HIV.

Human immunodeficiency virus testing prior to dental treatment and knowledge about patients' infection state can reassure dentists and allow them to confidently do their jobs. Up to now, many types of HIV tests had been developed that used whole blood or an oral fluid specimen. One of the latest types of testing is Ora Quick Advance, which detects antibodies to HIV-1 and HIV-2 in the oral fluid. The manufacturer indicates a specificity of 99.8% with oral fluid and 100% with whole blood (46).

Taking the measures required for infection control is an important part of daily dental practice from both patients' and practitioners' point of view. In this regard, it is necessary to have a good knowledge of the required measures and a positive attitude, as well as the appropriate practices in place. That HBV is more infectious than HIV was agreed by most of the dental practitioners which was a correct response.

In the current study, 81.6% of the dental practitioners were aware of the oral manifestations associated with the HIV/AIDS, which was similar to the finding in the study conducted by Sadeghi *et al* (43) (95.2%). They also showed that 98.1% respondents correctly identified oral candidiasis, 95.8% of their correctly identified major aphthous and 93.8% correctly identified Kaposi's sarcoma.

The outcomes of the other studies conducted in countries such as United States, Italy, Nigeria and England indicated a low level of dentists' knowledge, attitude and practice towards the treatment of HIV-infected patients (47–50). Therefore, there seems to be a need for more education and emphasis regarding infection control for dental students and dentists.

Additionally, the providers of dental services and supervising organizations should focus more on the subject. Also, incorporating the psychological aspects of treating HIV/AIDS patients (51) and continuing dental education programmes should be conducted on a regular basis for updating the knowledge of the dentists working in private practice and institutional-based practice regarding the treatment of this special population.

CONCLUSION

This study suggests the need to introduce into the dental curriculum a comprehensive educational and motivational programme for the next generation of dentists in order to ensure adequate care of HIV-positive patients. It is suggested that healthcare workers should be instructed on the appropriate management and counselling HIV and AIDS patients and impart sufficient knowledge of symptoms as well as how to diagnose and treat infected patients appropriately.

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